

Remarks:

Applicants (hereinafter, Applicant) hereby request reconsideration of the application.

Claims 1-19 are now in the application. Claims 1 and 11 have been amended. No new matter is believed to have been added.

In item 2 on page 2 of the above-identified Office action, claims 6-8 have been rejected as being nonenabling under 35 U.S.C. § 112, first paragraph.

More specifically, the Examiner stated that claim 6 calls for "applying spreading to the data message by a Direct Sequence Spread Spectrum method", which is not disclosed so as to enable a skilled artisan.

Applicant points out that the term "spread spectrum" is well known in the art, and thus does not need to be further explained. A person of skill in the art knows exactly how to subject data (e.g., a data telegram) to spreading with a predetermined spread spectrum.

It is accordingly believed that the claims meet the requirements of 35 U.S.C. § 112, first paragraph. The above-remarks are provided solely for cosmetic and/or clarificatory

reasons. They are neither provided for overcoming the prior art nor do they narrow the scope of the claim for any reason related to the statutory requirements for a patent.

In item 2 on page 3 of the Office action, claims 1-3 and 11 have been rejected as being fully anticipated by Braun et al. (U.S. Pat. No. 4,809,296) (hereinafter, "Braun") under 35 U.S.C. § 102.

In item 3 on page 3 of the Office action, claim 11 has been rejected as being fully anticipated by Kay et al. (U.S. Pat. No. 5,513,183) (hereinafter, "Kay") under 35 U.S.C. § 102.

In item 5 on page 4 of the Office action, claims 4, 5, 9 and 10 have been rejected as being obvious over Braun under 35 U.S.C. § 103.

In item 6 on page 5 of the Office action, claims 6-8 have been rejected as being obvious over Braun in view of Stewart et al. (U.S. Pat. No. 5,812,557) (hereinafter, "Stewart") under 35 U.S.C. § 103.

In item 7 on page 5 of the Office action, claims 12-19 have been rejected as being obvious over Braun in view of McCaslin (U.S. Pat. No. 5,036,294) under 35 U.S.C. § 103.

The rejections have been noted and the claims have been amended in an effort to even more clearly define the invention of the instant application.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claim 1 calls for a method for carrying out simplex transmission of a data message modulated onto a carrier frequency, which comprises:

transmitting a data message more than one time using at least two different carrier frequencies in temporal succession to increase immunity to interference; and

*changing the different carrier frequencies only within one single transmission channel.*

Accordingly, the *present invention* is directed to a method for carrying out simplex transmission of a data message modulated onto a carrier frequency (in particular, for simplex radio transmission in a radio access control system). In the method of the *present invention*, the data message is transmitted to increase immunity to interference, and "multiple transmission" is carried out using at least two different carrier

frequencies. Further, the different carrier frequencies are *changed only within one single transmission channel.*

Accordingly, in the *present invention*, coded information is transmitted several times within a transmission channel. During each transmission, the carrier frequency within a predetermined bandwidth is changed. It is attempted to ensure that the interference signals having a narrow bandwidth do not have an effect on the reception of the coded information, and that at least one code information is always reliably received. The transmitted code information is always the same. The code information verifies an authorization for using the motor vehicle.

When signals are transmitted, for example, in the frequency region of approximately 433 MHz (433.05 - 434.79 MHz), which is approved (in Germany) for use in motor vehicles, the bandwidth of the transmission channel can be 300 kHz, according to the invention. The carrier frequency with a bandwidth of 10 kHz is changed within this transmission channel of 300 kHz. The transmission channel is defined such that signals are transmitted and received only within this bandwidth (i.e., within the frequency window). Signals outside the bandwidth are not received. Thus, the transmission channel always refers to the frequency and the bandwidth, but not to the transmission medium.

The Braun reference discloses a method for transmitting data via lines of a power supply system, particularly at the low- and medium-voltage levels. In the method, a carrier frequency is modulated with the data and is transmitted. The same information is transmitted in the form of symbols, at several different times by different carrier frequencies for reducing the error rate during transmission. The disturbances of the power supply system and the time-and-frequency selective fading phenomena are neutralized in that way.

Accordingly, Braun includes a transmission system which operates with "frequency diversity." There, data are transmitted via current leads. The carrier frequency is changed from transmission channel to transmission channel using "frequency diversity". Thus, a change of the carrier frequency does not take place within a transmission channel. If one of the transmission channels is faulty, then a change takes place to the next, undisturbed transmission channel at a different frequency.

Further, Applicant submits (due to the Examiner's remarks on page 3, paragraph 2) that the Examiner seems to confuse the transmission channel with the transmission medium.

Accordingly, Applicant clarified claim 1 so as to recite that the different carrier frequencies are changed only within the transmission channel. Initially, a change within the transmission channel (i.e., within a relatively small bandwidth) does not seem to be very promising for preventing or reducing influences caused by interference signals.

However, such a multipath transmission within a small bandwidth will (in most cases) be successful, since the interference signals are (mostly) of a small bandwidth. This has the advantage that the receiver needs to be configured only for this transmission channel (with the limited bandwidth). In contrast, the receiver of Braun should be able to receive signals with carrier frequencies over several transmission channels. Therefore, it is configured in an extensive manner.

Although the probability (that the transmitted information is received correctly) may be higher in Braun, a somewhat lower probability of the *present invention* is sufficient for correctly receiving the code signal.

Neither do the Kay, Stewart and McCaslin references overcome the *deficiencies* of Braun.

Clearly, the references do not show "transmitting a data message more than one time using at least two different carrier frequencies in temporal succession to increase immunity to interference; and *changing the different carrier frequencies only within one single transmission channel*", as recited in claim 1 of the instant application (emphasis added). Thus, neither can the specific combination of the aforementioned limitations be shown. Claim 11 recites similar limitations. Claims 12 and 16 recite similar features and represent particular embodiments, which, inter alia, include the devices for carrying the method, according to the present invention.

In other words, the steps including the limitations "transmitting a data message more than one time using at least two different carrier frequencies in temporal succession to increase immunity to interference; and *changing the different carrier frequencies only within one single transmission channel*", as recited in claim 1, attain the present invention's objectives and are not taught or suggested by the references, whether taken alone or in any combination (emphasis added).

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claims 1, 11-12 or 16. Claims

1, 11-12 and 16 are, therefore, believed to be patentable over the art and since all of the dependent claims are ultimately dependent on claims 1, 11-12 or 16, they are believed to be patentable as well.

In view of the foregoing, reconsideration and allowance of claims 1-19 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, the Examiner is respectfully requested to telephone counsel so that, if possible, patentable language can be worked out.

Please charge any fees which might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner and



Greenberg, P.A., No. 12-1099.

Respectfully submitted,



For Applicant

VRP:cgm

Ven R. Ponugoti

Reg. No.51,052

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Lerner and Greenberg, P.A.

Post Office Box 2480

Hollywood, FL 33022-2480

Tel: (954) 925-1100

Fax: (954) 925-1101

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the claims:

Claim 1 (amended). A method for carrying out simplex transmission of a data message modulated onto a carrier frequency, which comprises:

transmitting a data message more than one time using at least two different carrier frequencies in temporal succession to increase immunity to interference; and

[only] changing the different carrier frequencies only [such that the frequencies occur] within one single transmission channel.

Claim 11 (amended). A method for simplex radio transmission in a radio access control system, which comprises:

transmitting a data message more than one time using at least two different carrier frequencies in temporal succession to increase immunity to interference; and

[only] changing the different carrier frequencies only [such that the frequencies occur] within one single transmission channel.